TouchKit
TouchScreen Controller
User Manual

for Windows 2000 / XP
Version: 4.0.2

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Chapter 1. Touch Panel Controller

This touch panel controller provides the optimistic performance of analog resistive touch panels for 4 wire, 5 wire and Capacitive models. It communicates with PC system directly through RS232 or USB connector. Users can see how superior the design is in sensitivity, accuracy and friendly operation. The touch panel driver emulates mouse left and right button function and supports operation systems including Microsoft Windows 95 / 98 / ME / NT4 / 2000 / XP / XP Tablet PC Edition, Windows CE 2.12 / 3.0/ .NET, Linux, iMac and DOS.

1.1 Controller

Interface	RS232	USB
4-wire	Ready	Ready
5-wire	Ready	Ready
Capacitive	Ready	Ready

Table 1. Controllers match with different interfaces

1.2 Specifications and Features

Specifications	
Power requirements	+5VDC (Maximum 100mA, typical 70mA, 50mV peak to peak maximum ripple)
Operating temperature	0 to 50 ℃
Storage Temperature	-40 to 80 ℃
Relative Humidity	95% at 60 ℃
Protocol	RS232 Model: 9600 bauds, None parity, 8 data bits and 1 stop bit USB Model: USB 1.1 Low speed
Resolution	2048 X 2048
Report rate	RS232 Model: Max. 160 points/sec USB Model: Max. 160 points/sec
Response time	Resistive: Max. 35 ms Capacitive: Max. 20 ms
Pin out definition	4 wire model: X+, Y+, X-, Y- 5 wire model: UL, UR, COM, LR, LL
Panel resistance	4 wire resistive model: 200 ~ 900 ohm (pin to pin on the same layer) 5 wire resistive model: 50 ~ 200 ohm (pin to pin on drive layer)
Regulatory Approvals	FCC-B, CE

Table 2. Specifications for **TouchKit** controller

Features	
Calibration	Fast full oriental 4 points position
Compensation	Accuracy 25 points linearity compensation.
Draw Test	Position and linearity verification
Language	Support 10 languages for Windows
Advanced Feature	1. Support monitor / display rotation 2. Support multiple monitor / display 3. Support QVGA and Half-VGA function 4. Support edge compensation 5. Support constant touch
Controller Setting	1. Support multiple controllers 2. Dynamical add / remove controllers 3. Change Controller interface without reboot.
Mouse Emulator	1. Right / Left button emulation 2. Normal / Click on touch / Click on release mode 3. Auto right button
Sound Notification	1. Sound option (No Sound / Touch Down / Lift Up) 2. Frequency adjustment 3. Duration adjustment
Double Click	1. Configurable double click speed 2. Configurable double click area
OS support	1. Windows 95 / 98 / ME / NT4 / 2000 / XP / Windows XP Tablet PC Edition 2. Windows CE 2.12 / 3.0 / .NET 3. Linux (RedHat / Fedora / Mandrake) 4. iMac. OS9.x / OSX 5. MS-DOS: Support display resolution: 320x200, 640x200, 640x350, 640x480, 800x600, 1024x768 and 1280x1024
COM port support	1. Support COM 1 ~ COM 256 for Windows and Linux 2. Support COM 1 ~ COM 8 for DOS

Table 3. Features for **TouchKit** software

Chapter 2. Installing TouchKit

2.1 For Windwos 2000

TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232 and USB, and another utility:

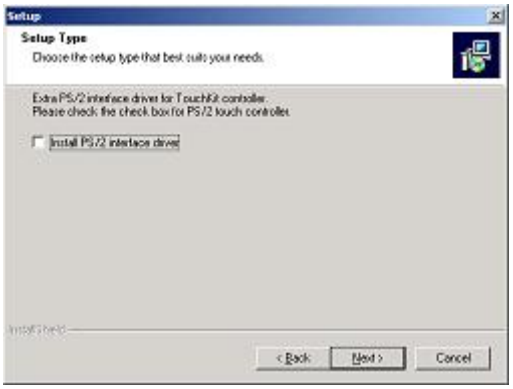
- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, users can add or remove for new RS-232 touch panel device.

Follow these steps to install **TouchKit.**

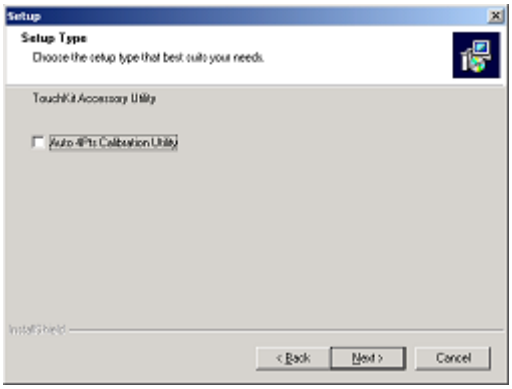
1. Put the **TouchKit** CD to CD-ROM.
2. Change directory to **Win2000_XP**
3. Double click the **Setup.exe**, then windows starts to run the installation program.
4. Just click **[Next >]** button to continue installation.

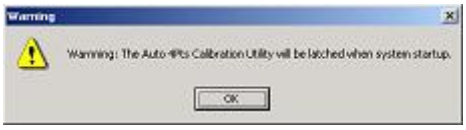
Setup
Welcome to TouchKit Setup
This program will install TouchKit on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
Next >
Cancel

5. Then check the check box if PS/2 touch controller is to be installed. The default is unchecked, then press **[Next >]** to continue installation.


Setup
Setup Type
Choose the setup type that best suits your needs.
Extra PS/2 interface driver for TouchKit controller.
Please check the check box for PS/2 touch controller.
Install PS/2 interface driver
< Back
Next >
Cancel

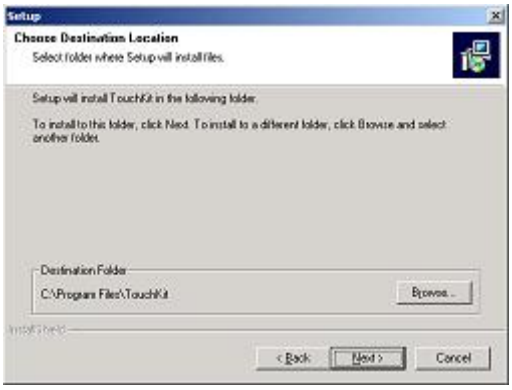
Choose the setup type that best suits your needs. There is a **TouchKit** accessory utility for choosing, **Auto 4Pts Calibrating Utility**. Users can install the utility they want by checking the box, then press **[Next >]** to continue installation.



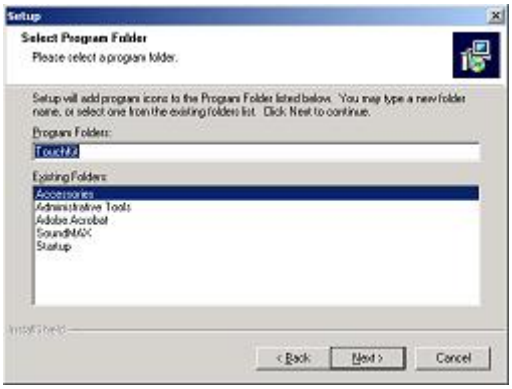


System will give you a warning, if users set the check box,

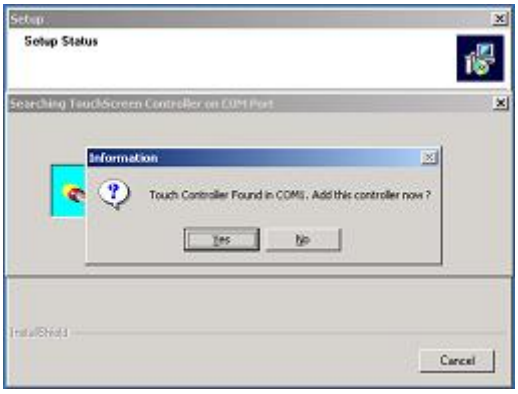
7. Select the appropriate folder where setup files will be installed. Then press **[Next >]** to continue installation.


Setup
Choose Destination Location
Select folder where Setup will install files.
Setup will install TouchKit in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\TouchKit
Browse...
< Back
Next >
Cancel

8. Then type in the name of program folder for **TouchKit** or press **[Next >]** to continue. There will be a default name for it.

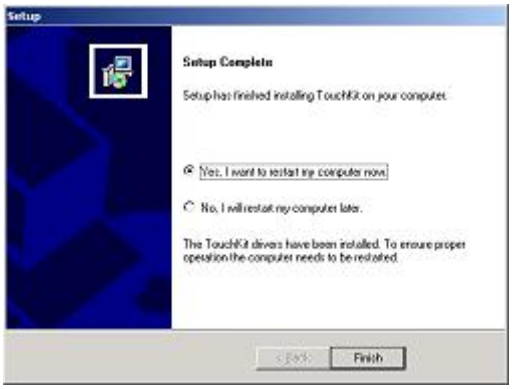

Setup
Select Program Folder
Please select a program folder.
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.
Program Folders:
TouchKit
Existing Folders:
Accessories
Administrative Tools
Adobe Acrobat
SoundMAX
Startup
< Back
Next >
Cancel

During driver installation, the setup program will scan COM port for RS232 **TouchKit** controller. Once the controller was scanned, the setup program will display a dialog as



Click Yes to add the controller on the specified COM port automatically.

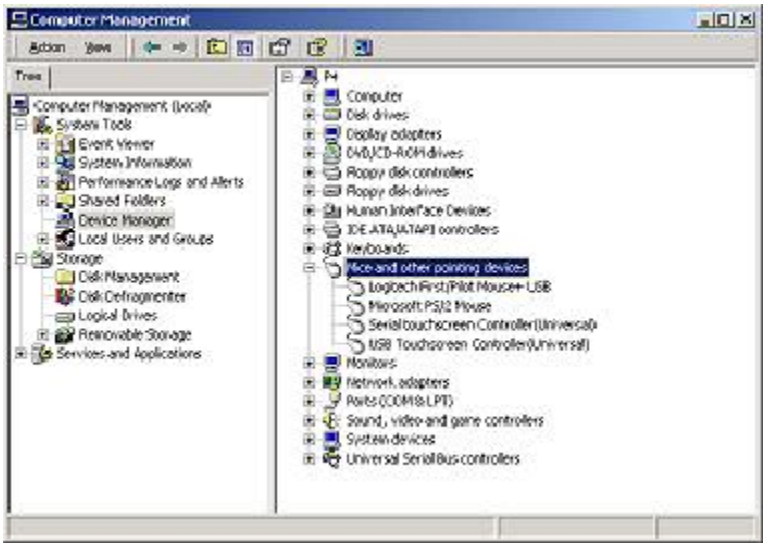
9. Windows is copying files to disk and the setup is complete. After finishing the installation, if PS/2 touch controller is installed, it needs to reboot the computer.


Setup
Setup Complete
Setup has finished installing TouchKit on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
The TouchKit drivers have been installed. To ensure proper operation the computer needs to be restarted.
< Back
Finish

10. Setup is complete. After **TouchKit** installation, the USB device will be found automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB Device automatically as soon as it was unplugged.

Notice that do not plug the USB controller on the system before the installation has been finished.

11. Users can check the situation of controllers in Device Manager. If the controller is set up well, there will be messages as the following picture.



TouchKit controllers work well

2.2 For Windows XP / XP Tablet PC Edition

TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and another utility.

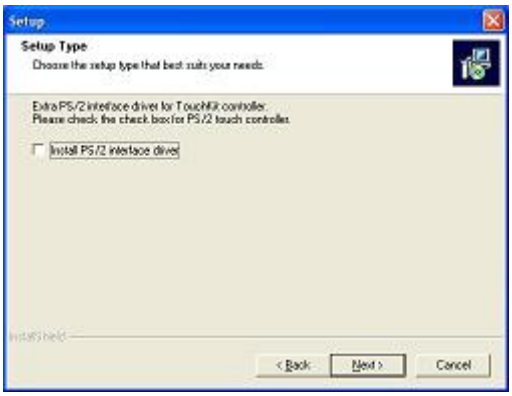
- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, users can add or remove for new RS-232 touch panel device.

Follow these steps to install **TouchKit.**

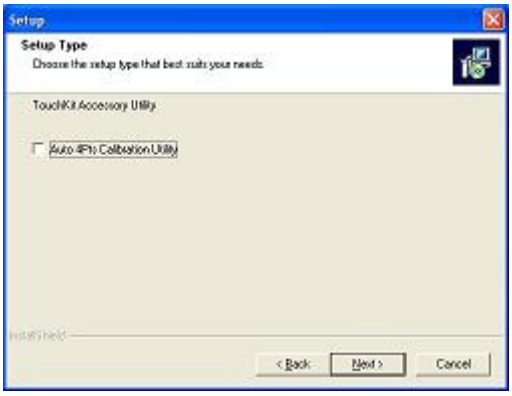
1. Put the **TouchKit** CD to CD-ROM.
2. Open the **Win2000_XP** directory.
3. Double click the **Setup.exe**, then windows starts to run the installation program.
4. Just click **[Next >]** button to continue installation.

Setup
Welcome to TouchKit Setup
This program will install TouchKit on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
Next >
Cancel

5. Check the check box if PS/2 touch controller is to be installed. The default setting is unchecked. Then Press **[Next >]** to continue installation.

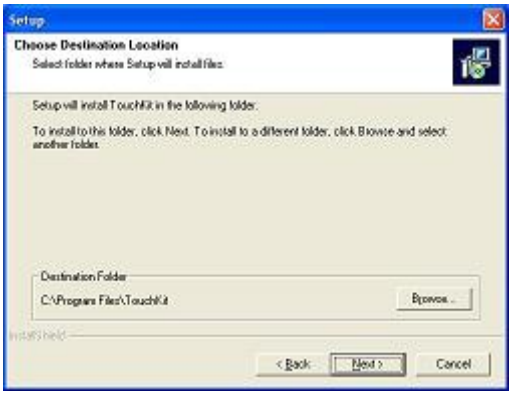

Setup
Setup Type
Choose the setup type that best suits your needs
Extra PS/2 interface driver for TouchKit controller.
Please check the check box for PS/2 touch controller.
Install PS/2 interface driver
< Back
Next >
Cancel

6. Choose the setup type that best suits your needs. There is a **TouchKit** accessory utility for choosing, **Auto 4Pts Calibration Utility**. Users can install the utility they want by checking the box. Then Press **[Next >]** to continue installation.

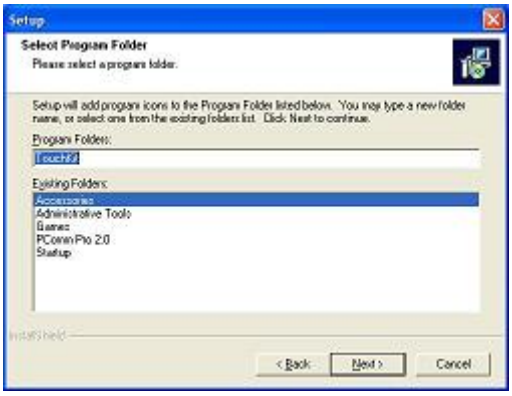


System will give you a warning, if users check the check box,

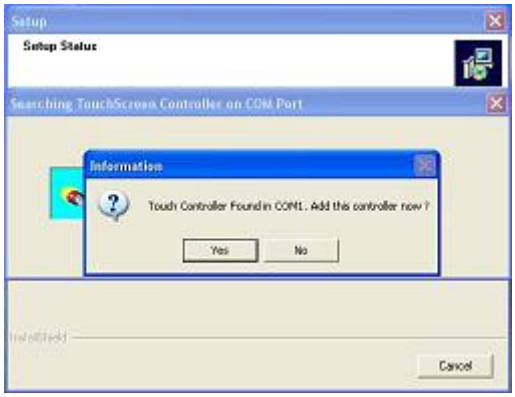
7. Select the appropriate folder where setup files will be installed.
   Then press **[Next >]** to continue installation.


Setup
Choose Destination Location
Select folder where Setup will install files.
Setup will install TouchKit in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\TouchKit
Browse...
< Back
Next >
Cancel

8. Then type in the name of program folder for **TouchKit** or press **[Next >]** to continue. There will be a default name for it.

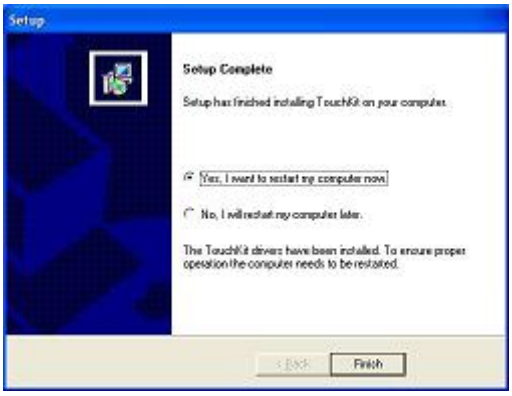


During installation, the setup program will scan COM port for RS232 **TouchKit** controller. Once the controller was scanned, the setup program will display a dialog as.

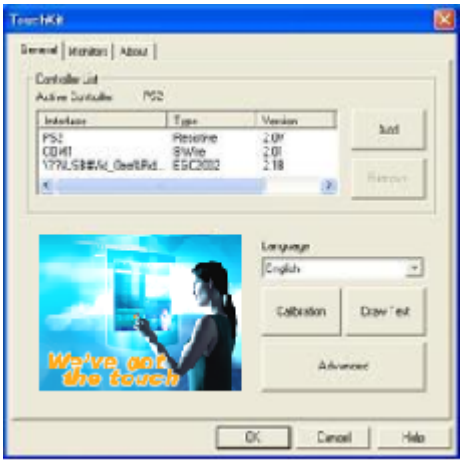


Click Yes to add the controller on the specified COM port automatically.

9. Windows is copying files to disk and the setup is complete. After finish the installation, if PS/2 touch controller is installed, it needs to reboot the computer.

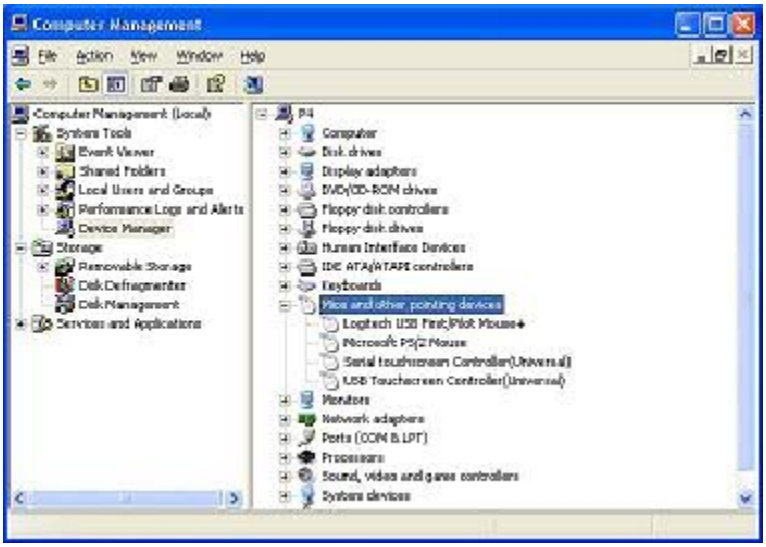

Setup
Setup Complete
Setup has finished installing TouchKit on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
The TouchKit drivers have been installed. To ensure proper operation the computer needs to be restarted.
Finish

10. Setup is complete. After **TouchKit** installation, the USB device will be found automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB device automatically as soon as it was unplugged.



Notice that do not plug the USB controller on the system before the installation has been finished.

11. Users can check the situation of controllers in Device Manager. If the controller is set up well, there will be messages as the following picture.



TouchKit controllers works well

Chapter 3. Configuration Utility

There are three property pages in **TouchKit** utility, and they are **General**, **Monitors** and **About**. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the **TouchKit** controllers through **TouchKit** Utility.

Functional Group Tab

General

General property page contains the functions of **devices Add / Remove**, **Language selection**, **Calibration**, **Draw Test** and **Advanced**.

General Function

<Add> / <Remove>

Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add RS-232 device to the **Panel List** dialogue box.

There is one devices found. Press **[Yes]** to continue.

The controller is displayed on the Panel List box. Users can get the information of interface, type, firmware version and baud rate for each controller.

Select one device after added more than one device at the panel list window.
The one selected will activate the controller, and remember to do the calibration before starting to use touch panel.

But, for hot-swapping USB touch controller, it will be added automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB touch controller automatically as soon as it was unplugged.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, users could see the normal display words under the traditional Chinese and English mode. There are ten different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian, Korean** and **Dutch** supported in this feature of **TouchKit**.

Note to select the compatible language first.

Select the compatible language first or users may not see the normal display of each button.

There are three buttons, **[Calibration] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

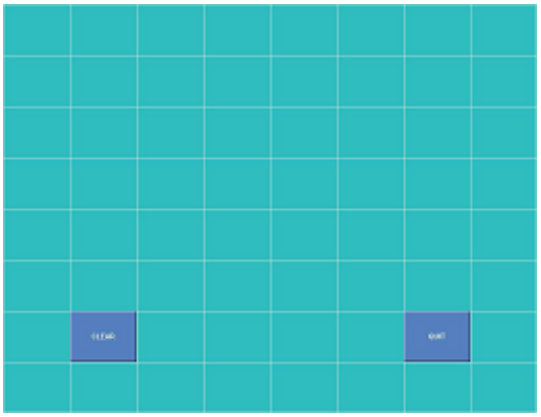
<Calibration>

Correct 4 point locations on screen with the panel. Press **[Calibration]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Draw Test>

Test the drawing position related to the display screen on panel.
Click on the **[Draw Test]** button. There will be a squared blue display showing.



In drawing test window, users can click **[Clear]** button to clear the window. Also, users can click **[Quit]** or press mouse right button to quit from the drawing test.
In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

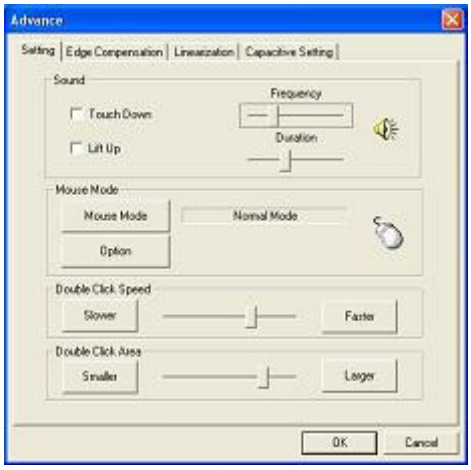
There are four property pages in **Advanced** page, and they are **Setting**, **Edge Compensation**, **Linearization** and **Capacitive Setting**. Each property page contains different functions for users to do the adjustments.

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **Sound Option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide users the click feedback while touching the panel.
Select preferred option first.

Sound options



<No Sound>

Users do not set any checkbox to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

he system will not make any sound until finger leaves the touch panel.

<Frequency>

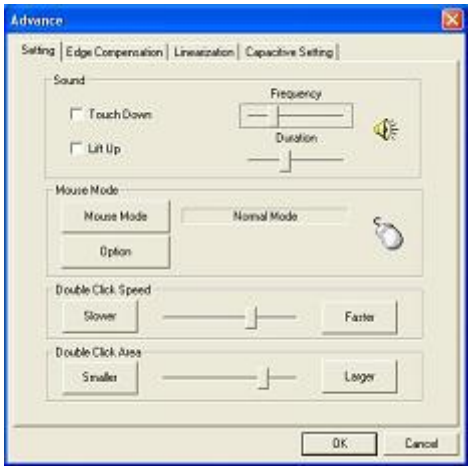
Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

The **Mouse Mode** provides users different operating options. They are as follows:

Mouse Mode



<Mouse Mode>

There are five kinds of mouse mode users could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

Click action is executed as soon as users touch the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

[Click on Touch no move]

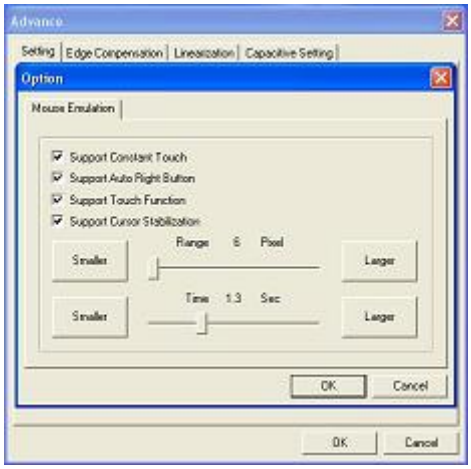
Driver will report a mouse click at the first touch point, then the cursor does not move until lift off.

[Click on Release no move]

Driver will report a mouse click at lift off point, then the cursor does not move during touch down.

<Option>

TouchKit provides an option for advanced Mouse Emulation setting. When the **Option** button is pressed, a setting property sheet will be popped up. **Support Constant Touch**, **Support Auto Right Button**, **Support Touch Function** and **Support Cursor Stabilization** checkboxes are shown in the property sheet to **enable** / **disable Constant touch**, **Auto right button**, **Touch function** and **Cursor stabilization** support.



[Constant Touch]

Enable **Constant Touch** to force driver to stop reporting touch point when the movement is within the range which users can adjust. Therefore, the user can see a stabilized cursor instead of a chattering cursor when users touch the same point with unwanted noise.

[Auto Right Button]

Enable **Auto Right Button** to force driver to report a **right click mouse event** to OS when users do a continuing touch till time out. This feature makes users to do **right click** more easily with touchscreen.

[Touch Function]

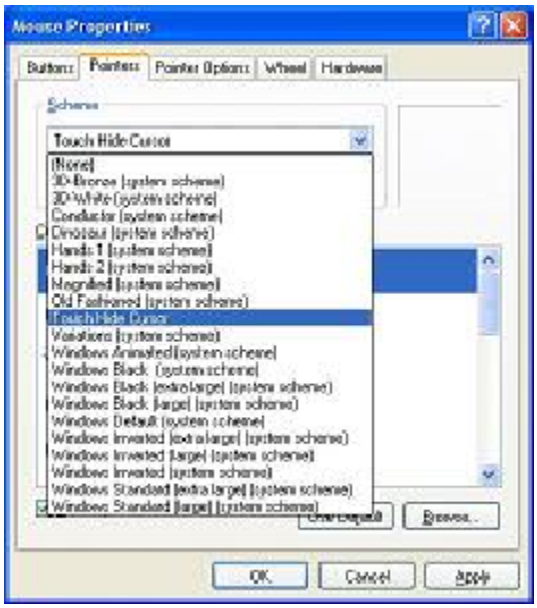
Enable **Touch Function** will start reporting touch point.

[Cursor Stabilization]

Enable **Cursor Stabilization** stabilize the cursor so that we can see a stable cursor under noisy environment.

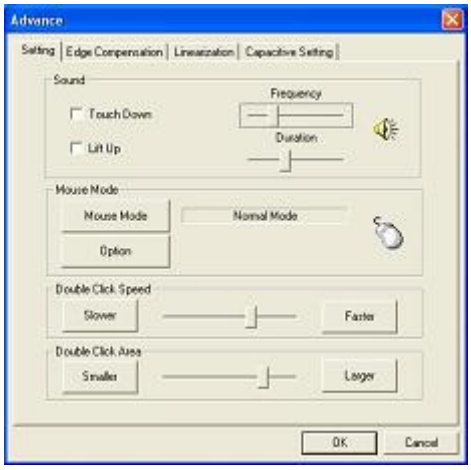
<Cursor Visibility>

Cursor visibility function provides users to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If users want to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

The **Double Click adjustment** provides users to set up the tolerance while double clicking. They are as follows:



Double Click Adjustment

<Double Click Speed>

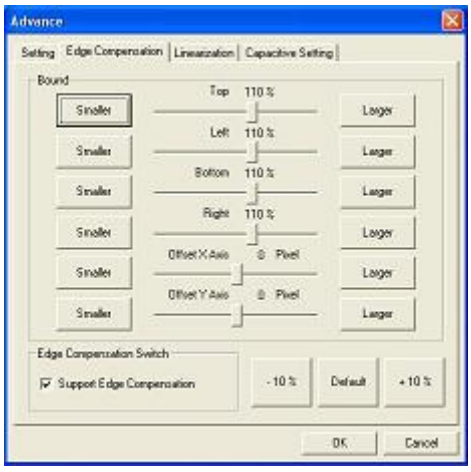
Double Click Speed is the double click response time for Windows system. Users can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

Each one touch has its own touch tolerance once someone may not fix in one point. So if users set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while users want to fix on a point. If users set it to **<Larger>**, it tolerates the larger touch point movement while users want to point at a fixed position.

Edge Compensation

Edge Compensation property page contains the functions of Edge Compensation for **Top, Bottom, Left, Right, X Axis and Y Axis**.



In some case, if it is difficult to touch items at the edges of the touch panel, users can set adjustment to reach the edges of the screen image.

<Top>

If users set the Edge to **<Smaller>**, **TouchKit** will reduce the horizontal position

of the top edge. If users set the Edge to **<Larger>**, **TouchKit** will extend the horizontal position of the top edge.

<Bottom>

If users set the Edge to **<Smaller>**, **TouchKit** will reduce the horizontal position of the bottom edge. If users set the Edge to **<Larger>**, **TouchKit** will extend the horizontal position of the bottom edge.

<Left>

If users set the Edge to **<Smaller>**, **TouchKit** will reduce the vertical position of the left edge. If users set the Edge to **<Larger>**, **TouchKit** will extend the vertical position of the left edge.

<Right>

If users set the Edge to **<Smaller>**, **TouchKit** will reduce the vertical position of the right edge. If users set the Edge to **<Larger>**, **TouchKit** will extend the vertical position of the right edge.

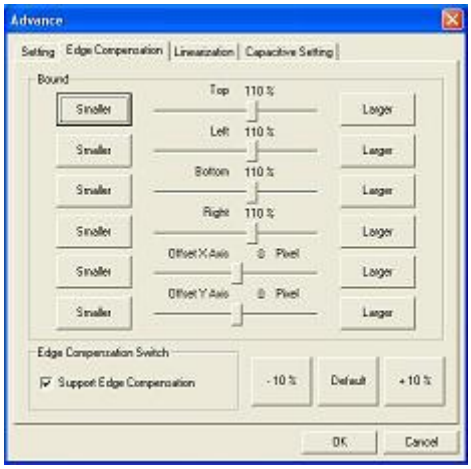
In some case, cursor will be behind the finger when users touch the panel. If users can not see the cursor when they touch down on the panel, users can set X Axis or Y Axis to move the cursor.

<Offset X Axis>

If users set the Offset X Axis to **<Smaller>**, cursor will be moved a pixel of X Axis to left. If users set the Offset X Axis to **<Larger>**, cursor will be moved a pixel of X Axis to right.

<Offset Y Axis>

If users set the Offset Y Axis to **<Smaller>**, cursor will be moved a pixel of Y Axis to top. If users set the Offset Y Axis to **<Larger>**, cursor will be moved a pixel of Y Axis to bottom.



Edge Compensation Switch

<Edge Compensation Switch>

Users can set Edge compensation checkbox to enable / disable this function from left bottom corner of **TouchKit** Utility.

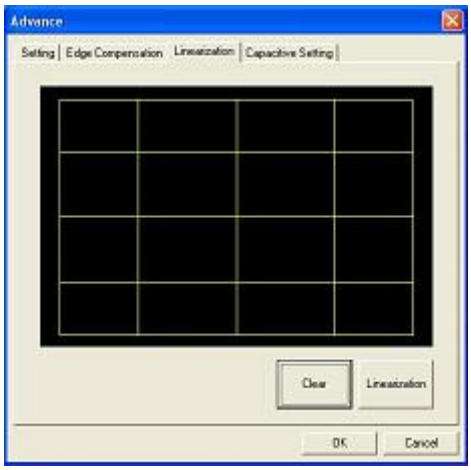
<Edge Compensation Buttons>

Using **+10% and -10% button** to adjust the smaller or larger of edge. If users press **+10% button**, the top, bottom, left and right edges will extend 10% of orientation to touch screen, and cursor will be moved 10 pixel of X and Y Axis to right and top. If users press **-10% button**, the top, bottom, left and right edges will contract 10% of orientation to touch screen, and cursor will be moved 10 pixel of X and Y Axis to left and bottom.

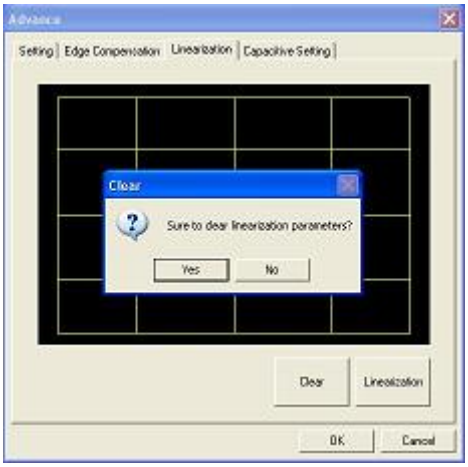
If users want the value back to the default value, choose **Default button**.

Linearization

TouchKit provides more accuracy 25 points calibration for touch sensor. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.



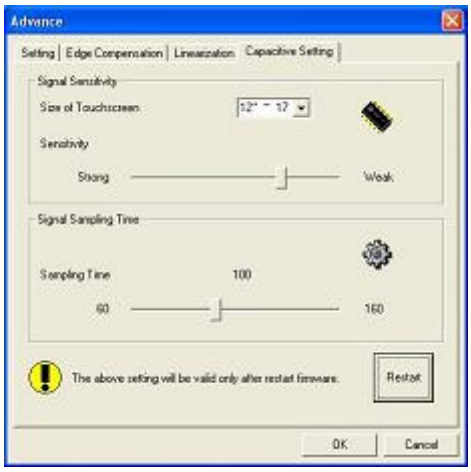
Press **[Yes]** to clear previous records. The record will become default record.

Press **[Linearization]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

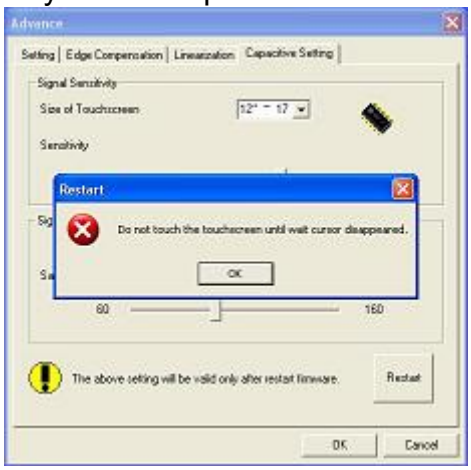
Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

Capacitive Setting

TouchKit provides controller setting for capacitive touch sensor. If the capacitive controller is selected, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**



The capacitive controller will restart, and do not touch the screen before the warning message disappears

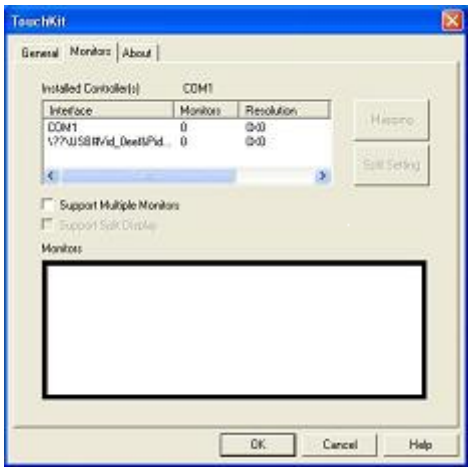
Warming: Do not adjust the sensitive and sampling time without RD help

Monitors

There are two functions in this property page, and they are **Multiple Monitors** and **Split Display**. Such a trendy and yet innovated design provides viewing pleasures, viewing flexibility and convenience to users.

<Multiple Monitors>

To configure the mapping relationship between the monitors and the touch panels, select the monitor page as below.

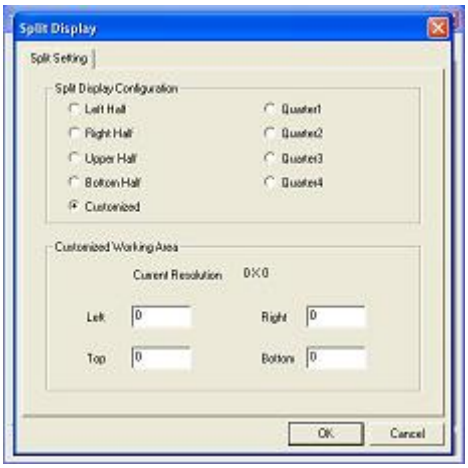


Set the check box (Support Multiple Monitors) to enable multiple monitors mapping. Uncheck this box will disable multiple-monitor configuration, and all of the touch panel controllers will be mapped to the primary monitor. The gray shadow area is the monitor mapped the selected controller/panel. The button **[Mapping]** is used to find the mapping relationships between the monitors and touch panel controllers. Press the **[Mapping]**, the software will guide users to touch the corresponding monitor to obtain the mapping relationship.

<Split Display>

To use the Split Display function, users need to select which controller you want

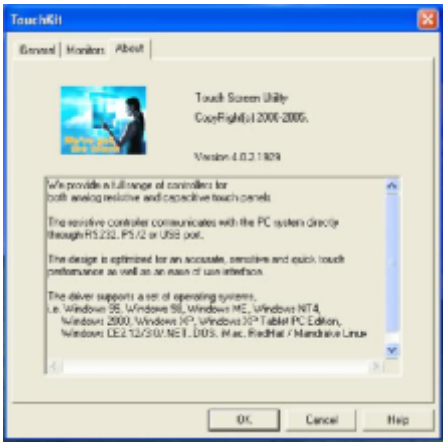
to launch this function, then set the Multiple Monitors and Split Display checkboxes at the same time then press the **[Split Setting]** button to set up the activate area.



It shows the current resolution of display and users can set up the activate area by inputting the value by yourself or use the default button.
The default value of panel resolution should be full screen as Left: **0** , Right: **0**, Top: **0** and Bottom: **0**.

About

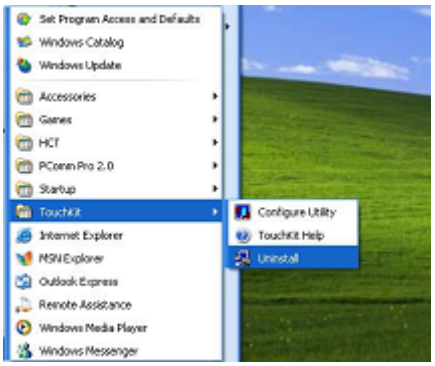
Information about **TouchKit**.



Chapter 4. Uninstalling TouchKit

Follow these steps to uninstall **TouchKit.**

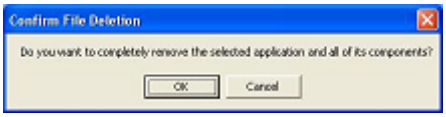
1. Go to S**tart / All programs / TouchKit / Uninstall**, and execute it.



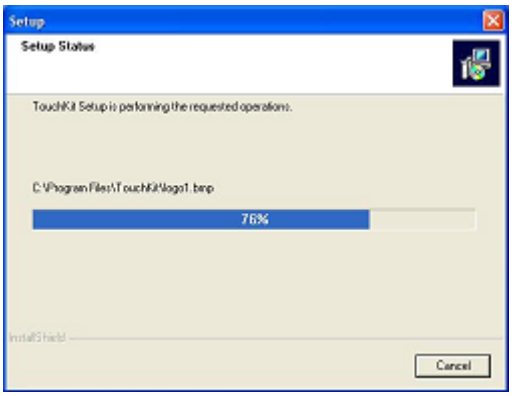
2. **TouchKit** setup dialog appears, and prepares to uninstall.

Setup
TouchKit Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.

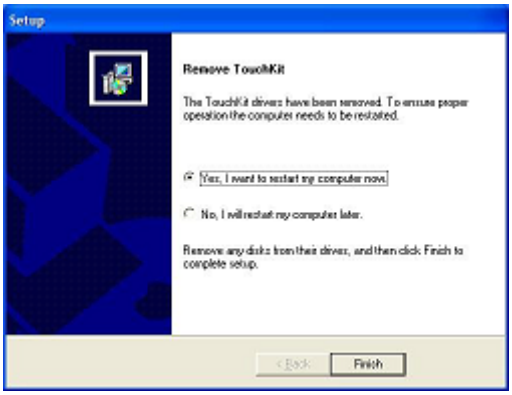


4. Start to uninstall **TouchKit**.



If users do not want to uninstall **TouchKit** at this moment, press **[Cancel]** to terminate the uninstall process.

1. **TouchKit** driver will not be unloaded until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.


Setup
Remove TouchKit
The TouchKit drivers have been removed. To ensure proper operation the computer needs to be restarted.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish